

PU020393 (JP6348616) ON 8796

- (19) Patent Agency of Japan (JP)
- (12) Official report on patent publication (A)
- (11) Publication number: 6-348616
- (43) Date of publication of application: 22.12.1994
- (51) Int.Cl. G06F 13/00 H04L 12/24 H04L 12/26
- (21) Application number: 5-165224
- (22) Date of filing: 10.06.1993
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- (54) Title of the invention: Event report processing circuit
- (57) Abstract:
Purpose: To increase the event report processing speed.
Constitution: An extracting means 1 extracts a controlled system in response to the attribute of the received event report out of a list of controlled systems that are registered for each attribute. A deciding means 2 decides whether the received event report satisfies or not the information conditions of the controlled system that is extracted by the means 1. If the informing conditions are satisfied, an informing means 3 informs the informing destination of the controlled system of the even report.

[Claim]

[Claim 1] An event report processing circuit including a storing means which stores a notification condition to a report destination which should notify an inputted event report and the mentioned above report destination of the mentioned above event report for every attribute of the

mentioned above event report, an extracting means to extract the mentioned above notification condition corresponding to an attribute and the mentioned above report destination of the event report concerned from the mentioned above storing means at the time of an input of the mentioned above event report, a deciding means which decides whether the event report concerned fulfills a notification condition extracted by the mentioned above extracting means, a means to notify to a report destination corresponding to a notification condition from which the event report concerned was extracted by the mentioned above extracting means when decided with fulfilling a notification condition extracted by the mentioned above extracting means by the mentioned above deciding means.

[Detailed description of the invention]

[0001] [Industrial application] Especially this invention relates to event report mode of processing in the network management system which is performing event report processing by the administration object which owns the notification condition and report destination of an event report about an event report processing circuit.

[0002] [Description of the prior art] Conventionally, in this kind of event report mode of processing, as shown on drawing 3, every administration object (EFD) which exists in a system at the time of an event report is taken out and it is investigated whether it is in the event report which the attribute specified by the notification condition received.

[0003] That is, in an event report processing circuit, reception of an event report will acquire one administration object registered preliminary (drawing 3, step 21). It is confirmed whether an event report processing circuit fulfills the notification condition which the administration object which the received event report acquired has (drawing 3, step 22).

[0004] In this check processing, it confirms whether all the attributes shown on the notification condition which an administration object has first are contained in an event report and when contained, comparison processing of conditions (Filter Item), such as the range of the kind of attribute and the value of that attribute, is performed ((1) of the drawing 3, step 22).

[0005] Next, when the notification condition is defined by the logical formula of the mentioned above conditions, a logical operation is performed based on the comparison result of a monograph affair ((2) of the drawing 3, step 22). If the result of an operation is an imitation (drawing 3, step 23), it will be decided whether the administration object which is not checked remains (drawing 3, step 25).

[0006] If the result of an operation is truth (drawing 3, step 23), it will be decided whether the received event report was notified to the report destination specified by the administration object (drawing 3, step 24) and the administration object that is not checked remains (drawing 3, step 25).

[0007] If the administration object which is not checked remains, it returns to Step 21 and the following administration object is acquired and the mentioned above processing will be repeated and will be performed. Processing is ended if the administration object which is not checked does not remain. Thus, in the event report processing circuit, the mentioned above processing is performed to all the administration objects which exist in a network management system.

[0008] [Problems to be solved by the invention] In the conventional event report mode of processing mentioned above, when combination with conditions, such as the range of the kind of an attribute and attribute included in the notification condition of one administration object and the value of the attribute, exists in other administration objects, it will carry out by repeating the same comparison processing and there is a problem that event report processing takes time.

[0009] Next, it is in the purpose of this invention providing the event report processing circuit which can cancel the mentioned above problem and can achieve improvement in the speed of event report processing.

[0010] [Means for solving the problem] An event report processing circuit by this invention includes a storing means which stores a notification condition to a report destination which should notify an inputted event report and the mentioned above report destination of the mentioned above event report for every attribute of the mentioned above event report, an extracting means to

extract the mentioned above notification condition corresponding to an attribute and the mentioned above report destination of the event report concerned from the mentioned above storing means at the time of an input of the mentioned above event report, a deciding means which decides whether the event report concerned fulfills a notification condition extracted by the mentioned above extracting means, a means to notify to a report destination corresponding to a notification condition from which the event report concerned was extracted by the mentioned above extracting means when decided with fulfilling a notification condition extracted by the mentioned above extracting means by the mentioned above deciding means.

[0011] [Example] Next, one example of this invention is described with reference to drawings.

[0012] Drawing 1 is a drawing showing the composition of one example of this invention. In a drawing, the extracting means 1 of the event report processing circuit by one example of this invention extracts the administration object corresponding to the attribute of the event report received out of the list of administration objects (EFD) registered into the storing means 4 for every attribute.

[0013] It is decided whether the deciding means 2 fulfills the notification condition of the administration object from which the received event report was extracted by the extracting means 1. The reporting means 3 notifies the event report concerned to the report destination of an

administration object, when it decides with the deciding means 2 fulfilling the notification condition.

[0014] Drawing 2 is a drawing showing the example of composition of the storing means 4 of drawing 1. In the drawing, an attribute name, conditions (it carries out the following Filter Item), such as the range of the kind of attribute and the value of the attribute and an administration object name are matched, respectively and are registered into the storing means 4 as an EFD list.

[0015] Here, efd1 in a drawing has the notification condition «alarm generation time is 1993/05/25 - 9:00 and alarm importance notifies 3 or more alarms».

[0016] efd2 has the notification condition «the kind of alarm is a transmission level fall and generation times notifies the alarm 1993/04/25». efd3 has the notification condition «the kind of alarm is a power fail and generation times notifies the alarm before 1993/05/25, 12:00».

[0017] As the thing arranged for every attribute name «alarm generation time», «the kind of alarm» and «the importance of alarm» drawing 2 shows these administration objects efd 1-3, it will be registered with the storing means 4.

[0018] Operation of one example of this invention is explained using these drawing 1 and drawing 2. In the network management system with which the administration objects efd1-efd3 as shown on drawing 2 at the storing means 4 are registered next, event report processing when the event report with an attribute name

«alarm generation time» and «the kind of alarm» occurs is explained.

[0019] When the mentioned above event report is received, the extracting means 1 confirms whether the attribute name «alarm generation time» and «the kind of alarm» which are included in an event report exist in the EFD list of storing means 4 (drawing 1, step 11).

[0020] The extracting means 1 compares Filter Item altogether about the attribute decided that exists in an EFD list as a result of a check (drawing 1, step 12). That is, since the condition of the extracting means 1 is «<= (next)» and «>= (before)» in Filter Item of an attribute name «alarm generation time», comparison before alarm generation time is performed alarm generation time or below.

[0021] Since the condition of the extracting means 1 is «=(equal)» in Filter Item of an attribute name «kind of alarm», it is compared whether the kind of alarm is equal.

[0022] Next, the extracting means 1 probes the administration object of the notification condition including all the attributes of an event report (drawing 1, step 13). In this case, the extracting means 1 probes efd2 and efd3 as an administration object of the notification condition including all of the attribute name «alarm generation time» and «the kind of alarm» which an event report has.

[0023] The extracting means 1 acquires one of administration object efd2 and efd3 probed and passes it to the deciding means 2 (drawing 1, step 14).

At this time, the extracting means 1 shall be passed to the deciding means 2 in order of administration object efd2 and administration object efd3.

[0024] The deciding means 2 performs the logical operation specified as the notification condition of administration object efd2 based on the comparison processing result of Filter Item performed by the extracting means 1 (drawing 1, step 15) and decides whether a logical operation result (decision result of a notification condition) is truth (drawing 1, step 16).

[0025] At this time, the logical operation (in this case and operation) of the comparison result of «<= (next)>» to «alarm generation time» and the comparison result of «= (equal)>» to «the kind of alarm» is performed by the deciding means 2. That is, by the deciding means 2, alarm generation time is decided for the kind of alarm 1993/04/25 whether it is a transmission level fall.

[0026] Since the deciding means 2 will pass the received event report to the reporting means 3 if a logical operation result decides with it being truth, the reporting means 3 transmits the received event report to the report destination specified by administration object efd2 (drawing 1, step 17).

[0027] If decided with a logical operation result is an imitation by the deciding means 2 or if an event report is transmitted to a report destination by the reporting means 3, it will be decided whether the administration object probed by the extracting means 1 remains (drawing 1 step 18).

[0028] If it remains and the administration object which remains in the deciding means 2 is passed and it does not remain from the extracting means 1, event report processing is completed. In this case, supposing administration object efd3 remains, administration object efd3 will be passed to the deciding means 2 from the extracting means 1.

[0029] Based on the comparison processing result of Filter Item performed by the extracting means 1, the deciding means 2 like processing of above administration object efd2, the logical operation specified as the notification condition of administration object efd3 is performed (drawing 1, step 15) and it is decided whether a logical operation result (decision result of a notification condition) is truth (drawing 1, step 16).

[0030] At this time, the logical operation (in this case and operation) of the comparison result of «>= (before)» to «alarm generation time» and the comparison result of «= (equal)» to «the kind of alarm» is performed by the deciding means 2. That is, by the deciding means 2, alarm generation time is decided for the kind of alarm before 1993/05/25 and 12:00 whether it is a power fail.

[0031] Since the deciding means 2 will pass the received event report to the reporting means 3 if a logical operation result decides with it is truth, the reporting means 3 transmits the received event report to the report destination specified by administration object efd3 (drawing 1, step 17).

[0032] If decided with a logical operation result is an imitation by the deciding means 2 or if an event report is transmitted to a report destination by the reporting means 3, it will be decided whether the administration object probed by the extracting means 1 remains (drawing 1, step 18).

[0033] If it remains and the administration object which remains in the deciding means 2 is passed and it does not remain from the extracting means 1, event report processing is completed. In this case, supposing the administration object does not remain, event report processing will be ended.

[0034] As mentioned above, in the one example of this invention, Filter Item is altogether compared about the attribute decided that exists in an EFD list based on the attribute name «alarm generation time» and «the kind of alarm» which are included in the received event report.

[0035] Thus, the comparison processing of Filter Item can be managed with 3 comparison processings of the comparison processing to «<= (next)» and «>= (before)» which are the conditions of an attribute name «alarm generation time» and the comparison processing to «= (equal)» which is the conditions of an attribute name «kind of alarm».

[0036] On the other hand, in the conventional example, it is carrying out to all the administration objects in a network management system including the attribute name «alarm generation time» included in the received event report and «the kind of alarm».

[0037] Thus, the comparison processing to «<= (next)» which is the conditions of the attribute name «alarm generation time» of administration object efd1, the comparison processing to «= (equal)» which is the conditions of comparison processing and an attribute name «kind of alarm» over «<= (next)» which is the conditions of the attribute name «alarm generation time» of administration object efd2, 5 comparison processings with the comparison processing to «= (equal)» which is the conditions of comparison processing and an attribute name «kind of alarm» over «>= (before)» which is the conditions of the attribute name «alarm generation time» of administration object efd3 are needed.

[0038] Thus, arranging an administration object for every attribute and registering with the storing means 4, the extracting means 1 extracts the administration object of the notification condition including all the attributes contained in the received event report, it is decided by the deciding means 2 whether the logical operation specified as the notification condition of this extracted administration object is performed and the notification condition concerned is fulfilled, when it decides with fulfilling the notification condition, by notifying the event report concerned to the report destination of an administration object from the reporting means 3, the comparison processing of Filter Item in the administration object that exists in a network management system can be managed with necessary minimum processing.

[0039] Thus, after receiving an event report, a notification condition can be decided, time until it notifies the event report concerned to a report destination can be shortened and improvement in the speed of event report processing can be achieved.

[0040] [Effect of the invention] As explained above, according to this invention, it stores for every attribute of an event report of the notification condition to the report destination which should notify the inputted event report and the report destination of an event report, the notification condition and report destination corresponding to an attribute of the event report concerned are extracted at the time of the input of an event report, when decided with fulfilling the notification condition from which the event report concerned was extracted, by notifying to the report destination corresponding to the notification condition from which the event report concerned was extracted, it is effective in the ability to achieve improvement in the speed of event report processing.

[Brief description of the drawings]

[Drawing 1] is a drawing showing the composition of one example of this invention.

[Drawing 2] is a drawing showing the example of composition of a storing means of drawing 1.

[Drawing 3] is a flow chart showing event report processing of a conventional example.

[Description of numerals]

1 Extracting means

2 Deciding means

3 Reporting means

4 Storing means

[Written amendment]

[Filing date] December 17, 1993

[Amendment 1]

[Document to be amended] Specification

[Item to be amended] Claim

[Method of amendment] Change

[Proposed amendment]

[Claims]

[Claim 1] An event report processing circuit including a storing means which stores a notification condition to a report destination which should notify an inputted event report and the mentioned above report destination of the mentioned above event report for every attribute of the mentioned above event report, an extracting means to extract the mentioned above notification condition corresponding to an attribute and the mentioned above report destination of the event report concerned from the mentioned above storing means at the time of an input of the mentioned above event report, a deciding means which decides whether the event report concerned fulfills a notification condition extracted by the mentioned above extracting means, a means to notify to a report destination corresponding to a notification condition from which the event report concerned was extracted by the mentioned

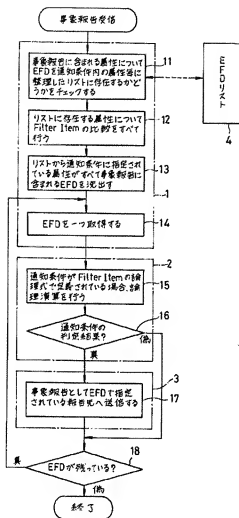
above extracting means when decided with fulfilling a notification condition extracted by the mentioned above extracting means by the mentioned above deciding means.

[Claim 2] The event report processing circuit according to claim 1 including a means by which the mentioned above extracting means probes the attribute of the event report concerned which includes all of an attribute name and a range of a value of an attribute at least at the time of an input of the mentioned above event report, a means to extract the mentioned above notification condition corresponding to a probed attribute and the mentioned above report destination from the mentioned above storing means.

Drawing 2

属性名	Filter Item	EFD名
アラーム発生時刻	\leq (以降)	e f d 1 e f d 2
	\geq (以前)	e f d 3
アラームの種類	$=$ (等しい)	e f d 2 e f d 3
アラームの重要度	\leq (以上)	e f d 1

Drawing 1



Drawing 3

